

# ONKYO® SERVICE MANUAL

## Integrated Stereo Amplifier MODEL A-8170

UD	120V AC, 60Hz
UG	220V AC, 50Hz
UQ	240V AC, 50Hz
UW, UWX	120V/220V AC, 50Hz/60Hz

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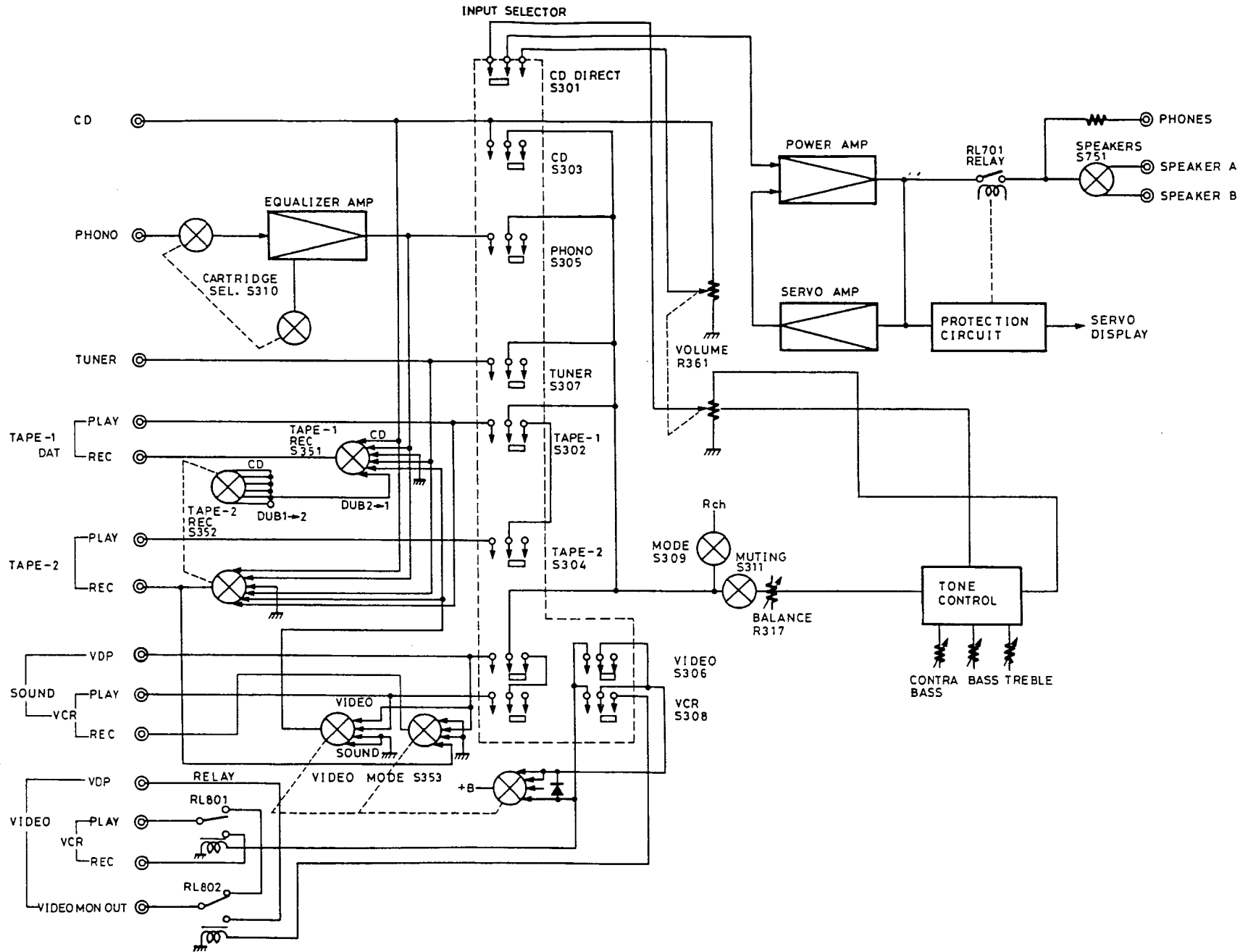
**ONKYO**  
**AUDIO COMPONENTS**

## SPECIFICATIONS

Power Output:	80 watts per channel, min RMS. at 8 ohms, both channels driven from 20 Hz to 20 kHz, with no more than 0.008% Total harmonic distortion.
Dynamic Power:	224 watts 2 ohms, 170 watts 4 ohms
Total Harmonic Distortion	0.008% at rated power 0.008% at 1 watt output
Intermodulation Distortion:	0.005% at rated power
Damping Factor:	50 at 8 ohms.
Input Sensitivity/ Impedance :	Phono (MM): 2.5 mV/50 kohms Phono (MC): 160 $\mu$ V/220 ohms CD DIRECT: 150 mV/50 kohms TUNER: 150 mV/50 kohms Tape Play: 150 mV/50 kohms VCR Play: 150 mV/50 kohms VDP Play: 150 mV/50 kohms
Output Level/Impedance:	Tape Rec: 150 mV/1.5 kohms (Phono)
Phono Overload:	Phono (MM): 200 mV RMS. at 1 kHz, 0.015% THD.
Tone Control (Vol -20 dB):	CONTRABASS: +10 dB at 20 Hz BASS: $\pm$ 10 dB at 70 Hz TREBLE: $\pm$ 8 dB at 20 kHz
High Cut:	6 kHz (6 dB/Octave) (TREBLE min.)
Frequency Response:	CD, Tuner: 2 Hz-50 kHz (+0, -1 dB)
RIAA Deviation:	Phono (MM): $\pm$ 0.3 dB, 20 Hz-20 kHz
Signal to Noise Ratio (IHF-A):	Phono (MM): 93 dB (5 mV input) Phono (MC): 74 dB (0.5 mV input) CD DIRECT: 107 dB
Muting:	-20 dB
Power Supply:	USA & Canadian models: AC120V, 60 Hz European models: AC220V, 50 Hz U.K & Australia models: AC240V, 50 Hz Worldwide models: AC120V 60Hz and AC220V 50Hz switchable
Dimensions:	435(W) x 147(H) x 388(D) mm 17-1/8" x 5-13/16" x 15-5/16"
Weight:	11.2 kg, 24.7 lbs.

Specifications and features are subject to change without notice.

# BLOCK DIAGRAM



## ADJUSTMENT PROCEDURES

### 1. Preparations

- 1) Leave the machine in a normal condition parallel to the work bench, maintaining a clearance of 15mm from the bottom for air circulation.
- 2) Set the level to minimum with no load and no signal.
- 3) When making the adjustment, there must be no breeze blowing from the outside.

### 2. Adjustment of idling current

- 1) Turn ON the power switch, and leave the unit as is for about 5 minutes.
- 2) Adjust the semi-fixed resistor R531 (R532) so that the voltage between the terminals  $V_{CT}$  and  $I_{ID}$  of the printed circuit board NAAF-2983 is 7.5mV.

### 3. Operating check of protection circuit

- 1) When the power switch is turned ON.
  - After about 5 second, relay RL701 of the NAAF-2983 printed circuit board go ON.
  - Operation indicator lights.
- 2) When the power is turned OFF.
  - Immediately a relay go OFF.
- 3) With no load, when  $\pm 200\text{mV}$  DC is CD input, the speaker relay go OFF.

Caution: During this test, there should be absolutely no load connected and the load terminals must not be shorted.

## PRECAUTIONS

### 1. Replacing the fuses

For continued protection against risk fire, replace only with same type and same rating fuse.

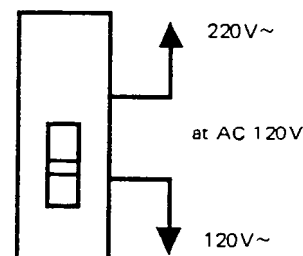
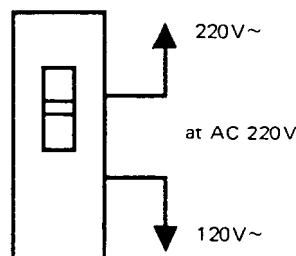
CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252050	6A(ST-6), Primary fuse (120V model)
F902	252076 or 252076CC	3.15A-SE-EAK Primary fuse (220V, 240V, 120V/220V model) 3.15A-SE-EAK Primary fuse (220V, 240V, 120V/220V model)

### 2. Insulation resistance measurement (Only U.S.A. model)

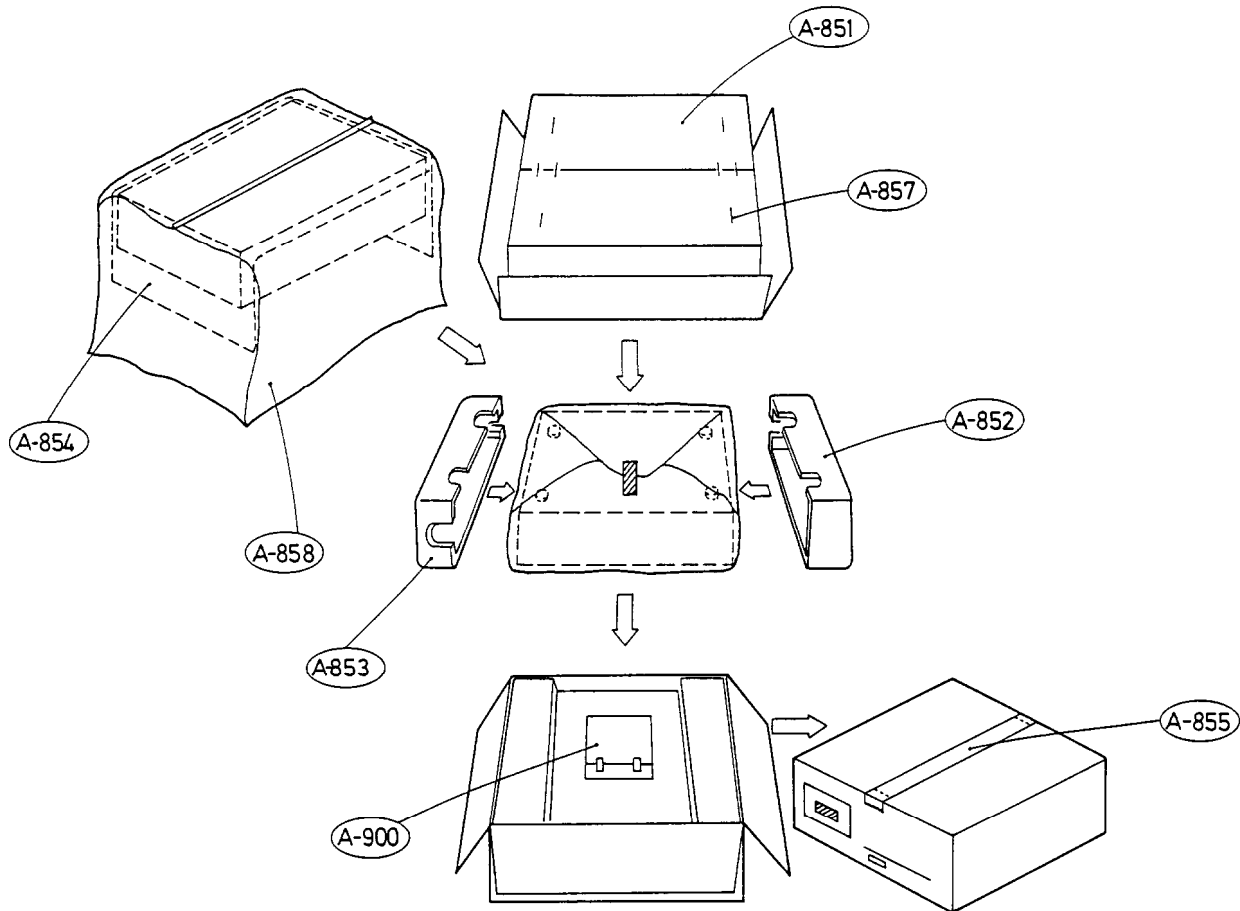
Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel. Specifications; More than 10 M $\Omega$  at 500V.

### 3. Voltage selector (rear panel)

Worldwide models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. Voltage is changed by sliding the groove in the switch with a screwdriver or similar instrument to up or down position. Confirm that the switch has been moved all the way to up or down before turning the power switch on. If there is no voltage selector switch on the unit you have purchased, it can only be used in areas where the power supply voltage is the same as that of the unit.

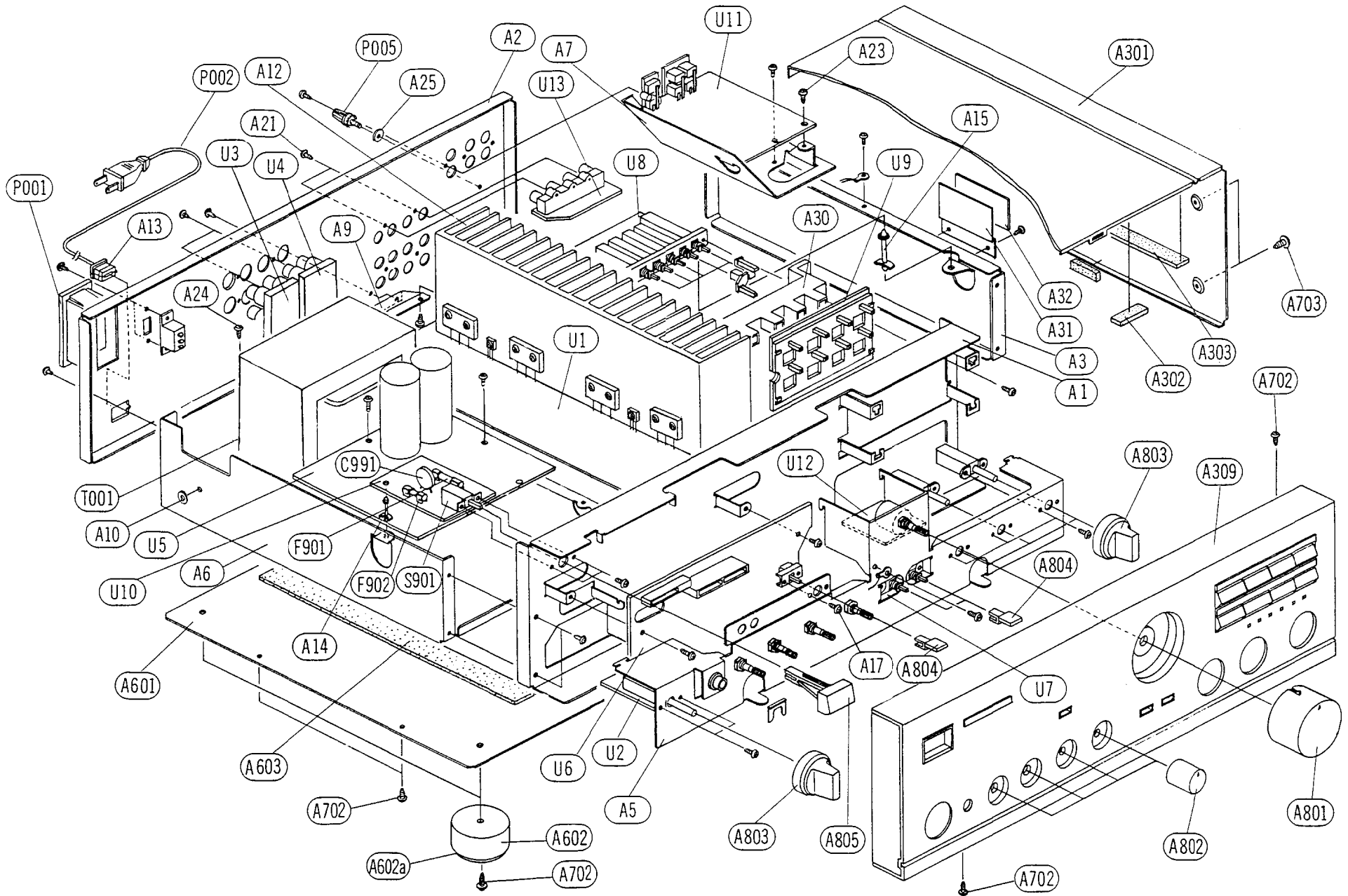


# PACKING PROCEDURES



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A851	29051538	MASTER CARTON BOX		29365019	WARRANTY CARD [N]
A851	29051559	MASTER CARTON BOX [X]		29365021	WARRANTY CARD [X]
A852	29091159	PAD LEFT		29358002E	SERVICE STATION LIST [N][X]
A853	29091160	PAD RIGHT		25055018	CONVERSION PLUG CV-K-1 [W]
A854	29095012-1	SHEET 800×500		25055251	CONVERSION PLUG CV-CP [X]
A855	260012	DAMPLON TAPE W50 BROWN		29100006A	POLY BAG 350×250
A857	282301	STAPLE 16H			
A858	29100038A	POLY BAG 720×950			
	29360778	LABEL (FLASH) [N]			
	29360815	LABEL (120) [X]			
	29380084	CAUTION (120) [X]			
	29360816	LABEL (220) [X]			
	29380085	LABEL (220) [X]			
	28330072	CAP (AC OUTLET) [X]			
A900		ACCESSARYBAG	NOTE		[D]: ONLY 120V MODEL
	29341154	INSTRUCTION MANUAL [D] [N] [X]			[G]: ONLY 220V MODEL
	29341155	INSTRUCTION MANUAL [G] [W] [A] [B]			[W]: ONLY 120V/220V MODEL
	29341160	INSTRUCTION MANUAL (I) [G] [W]			[N]: ONLY U.S.A. MODEL
					[X]: ONLY MILITARY MARKET MODEL
					[A]: ONLY AUSTRALIAN MODEL
					[B]: ONLY BRITISH MODEL

# CHASSIS-EXPLODED VIEW



# CHASSIS-EXPLODED VIEW-PARTS LIST

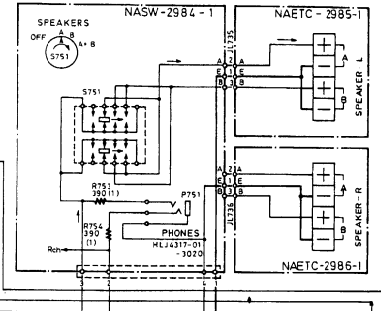
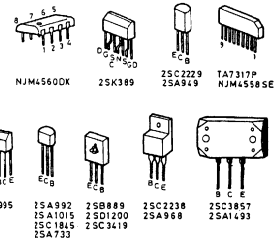
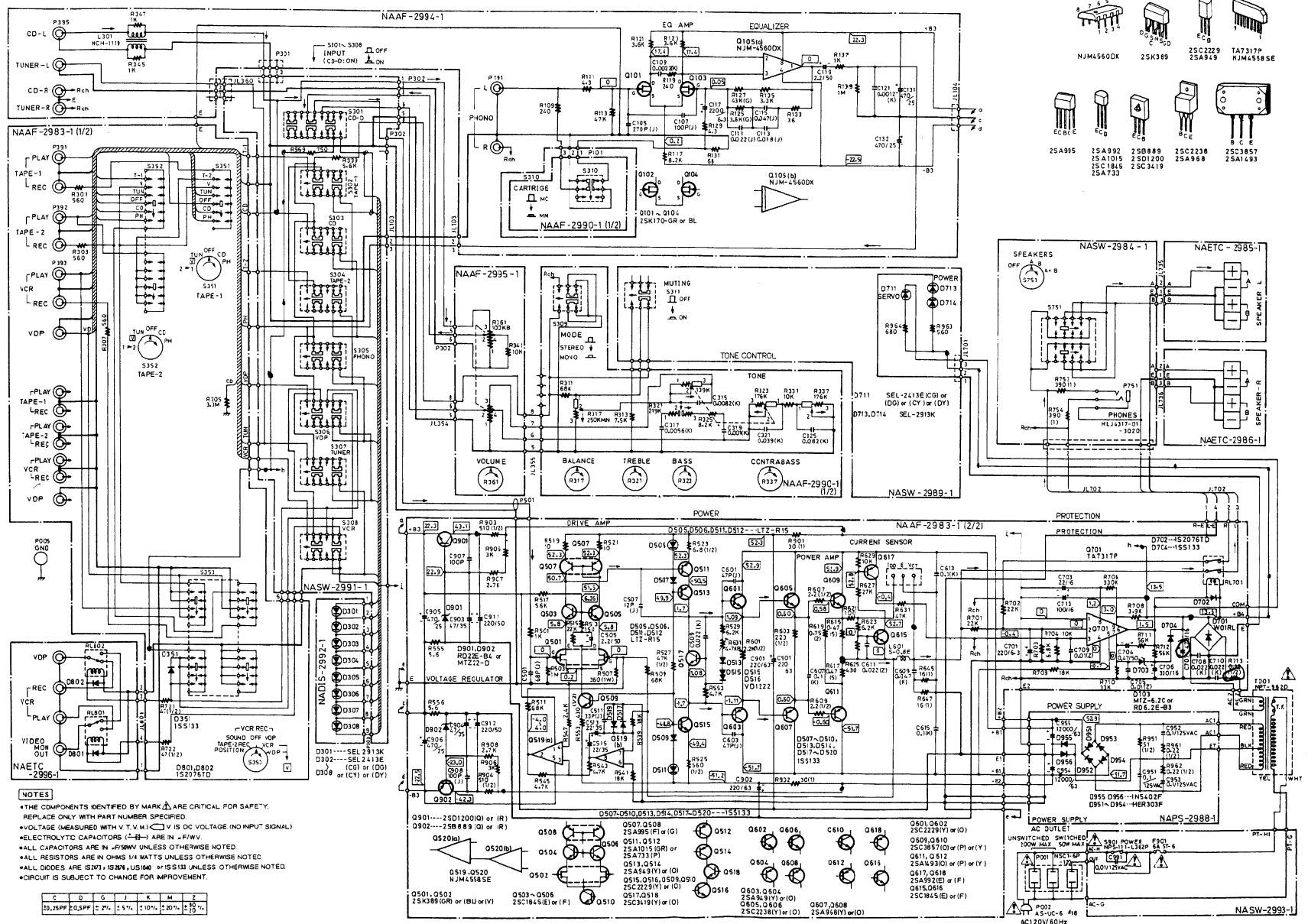
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A1	27110361	FRONT BRACKET	△S001	25065123	SLIDE SWITCH, NSS-1258P	U7	1A026590-1	NAAF-2990-1, TONE CONTROL CIRCUIT PC BOARD ASS'Y
A2	27121004	BACK PANEL			[W] [X]			
A2	27121005	BACK PANEL [G]	△S901	25035398	POWER SWITCH, NPS-111-L362P	U8	1A026591-1	NASW-2991-1, INPUT SELECTOR SWITCH PC BOARD ASS'Y
A2	27121007	BACK PANEL [W]	△P001	25050293	AC SOCKET, NSCT-6P120 [D][X]			
A2	27121008	BACK PANEL [X]	△P002	253123 or	AC CORD, AS-UC-6#18 or [D][X]	U9	1A026592-1	NADIS-2992-1, DISPLAY LED PC BOARD ASS'Y
A2	27121009	BACK PANEL [A] [B]		253136 or	AC CORD, AS-UC-6#18 or [D][X]			
A3	27115224	SIDE BRACKET		253140	AC CORD, AS-UC-6#18 [D] [X]	U10	1A026593-1	NASW-2993-1, POWER SWITCH PC BOARD ASS'Y
A5	27130473	BRACKET (F)	△P002	253130A or	AC CORD, AS-CEE or [G]			
A6	27130474	BRACKET (L)		253128B	AC CORD, AS-CEE [G]	U10	1A026593-1A	NASW-2993-1A, POWER SWITCH PC BOARD ASS'Y [G] [A] [B]
A7	27130450	BRACKET (EQ)	△P002	253092-1A	AC CORD, AS-CEE-2 [W]			
A8	28140730	CUSHION	△P002	253118	AC CORD, AS-SAA [A]	U10	1A025593-1B	NASW-2993-1B, POWER SWITCH PC BOARD ASS'Y [W]
A9	27141084A	BRACKET (H)	△P002	728320 or	AC CORD, 2-0.75BS16 BLK/GRY [B]	U10	1A025593-1C	NASW-2993-1C, POWER SWITCH PC BOARD ASS'Y [X]
A10	27270212	SPACER			AC CORD, 2-0.75BS16 BLK/GRY [B]	U11	1A026594-1	NAAF-2994-1, EQUALIZER CIRCUIT PC BOARD ASS'Y
A11	27270213	SPACER (PT)		728328	AC CORD, 2-0.75BS16 BLK/GRY [B]			
A12	27160203	HEATSINK			TERMINAL	U11	1A026594-1B	NAAF-2994-1B, EQUALIZER CIRCUIT PC BOARD ASS'Y
A13	27300750	BUSHING (CORD)	P005	25060044	FUSE, 6A ST-6	U11	1A026594-1B	NAAF-2994-1B, EQUALIZER CIRCUIT PC BOARD ASS'Y [G] [W] [X]
A14	27190011	HOLDER LCBS-6NS	△F901	252051	FUSE HOLDER, S-N5051			
A15	27190532	HOLDER KGLS-7S	△F901a	250113	FUSE, 3.15A-SE-EAK	U12	1A026595-1	NAAF-2995-1, VOLUME CONTROL PC BOARD ASS'Y
A17	82143006	PAN HEAD SCREW, 3P+6FNBC	△F902	252076 or	[G] [W] [X] [A] [B]			
A21	834430108	TAP-TIGHT SCREW, 3TTS+10BBC			FUSE, 3.15A-SE-EAK	U13	1A026596-1	NAETC-2996-1, VIDEO TERMINAL PC BOARD ASS'Y
A23	831130088	TAP-TIGHT SCREW, 3TTW+8B		252076CC	[G] [W] [X] [A] [B]			
A24	830440109	TAP-TIGHT SCREW, 4TTC+10CBC			FUSE HOLDER, YSH403T			
A25	87613010	WASHER, W3X10F	△F902a	25050065	[G] [W] [X] [A] [B]			
A30	27273059A	JOINT ASS'Y			0.01μF, AC 400V/125V, CAPACITOR (IS)			
A31	27150236	SHIELD PLATE	△C991	3500065A	2SC3419 Y or	NOTE	[D]: ONLY 120V MODEL	
A32	28175140	INSULATING PLATE			2SC3419 O		[G]: ONLY 220V MODEL	
A301	28184365	TOP COVER	Q517, Q518	2212864 or	2SC3857 O or		[W]: ONLY 120V/220V MODEL	
A302	28140020	CUSHION		2212863	2SC3857 P or		[X]: ONLY MILITARY MARKET MODEL	
A303	28140695	CUSHION	Q609, Q610	2201803 or	2SC3857 Y		[A]: ONLY AUSTRALIAN MODEL	
A309	1A025121	FRONT PANEL		2201806 or	2SA1493 O or		[B]: ONLY BRITISH MODEL	
A601	27170234B	BOTTOM BOARD		2201804	2SA1493 P or			
A602	27175153	LEG ASS'Y	Q611, Q612	2201793 or	2SA1493 Y			
(A602a)	28140747	CUSHION		2201796 or	NAAF-2983-1, REC.SELECTOR AND POWER AMPLIFIER CIRCUIT PC BOARD ASS'Y			
A701	834430088	TAP-TIGHT SCREW, 3TTS+8BBC		2201794	NASW-2984-1, SPEAKER SWITCH PC BOARD ASS'Y			
A702	838440089	TAP-TIGHT SCREW, 4TTB+8CBC	U1	1A026583-1	NAETC-2985-1, SPEAKER TERMINAL PC BOARD ASS'Y			
A801	28323027	KNOB (VOL)			NAETC-2986-1, SPEAKER TERMINAL PC BOARD ASS'Y			
A802	28323029	KNOB (TONE)			NAPS-2988-1, POWER SUPPLY PC BOARD ASS'Y			
A803	28322700	KNOB (SP)	U2	1A026584-1	NASW-2989-1, MUTING SWITCH PC BOARD ASS'Y			
A804	28322701	KNOB (PUSH)						
A805	28322702A	KNOB (POW)	U3	1A026585-1				
△T001	2300230	POWER TRANSFORMER, NPT-962D	U4	1A026586-1				
△T001	2300231	POWER TRANSFORMER, NPT-962G [G]	U5	1A026588-1				
△T001	2300232	POWER TRANSFORMER, NPT-962DG [W] [X]	U6	1A026589-1				
△T001	2300233	POWER TRANSFORMER, NPT-962Q [A] [B]						

**NOTE: THE COMPONENTS IDENTIFIED BY MARK △ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.**

# SCHEMATIC DIAGRAM

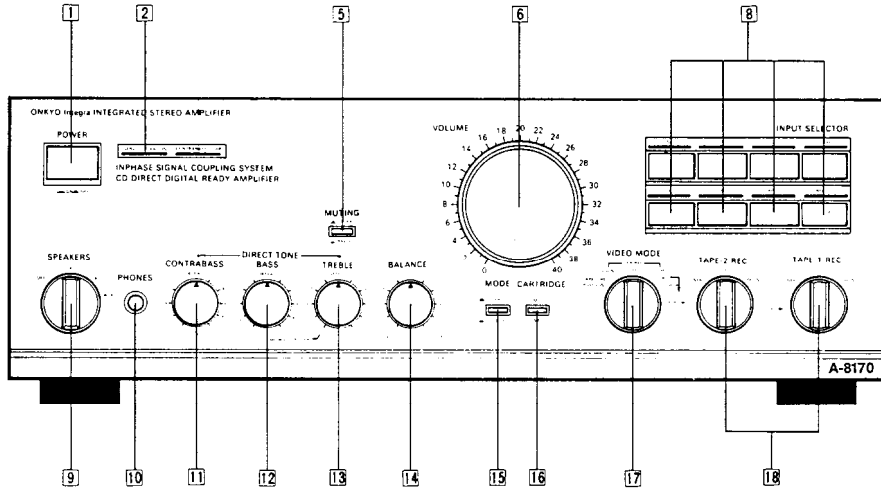
(120V Model)

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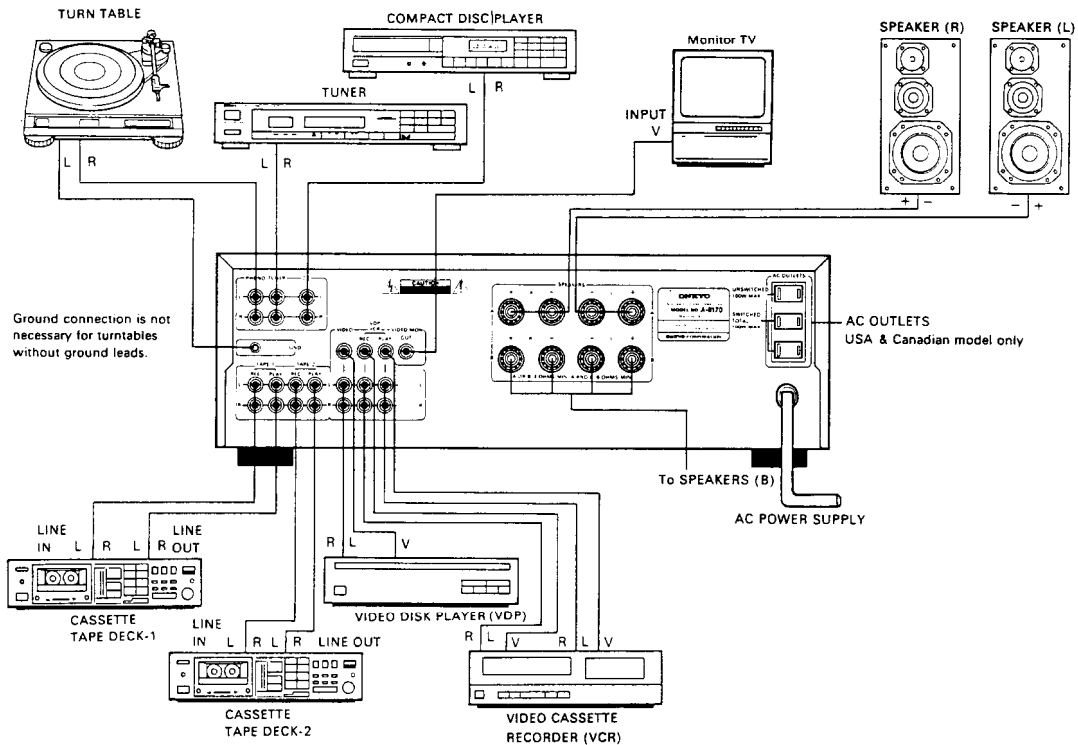


# FRONT PANEL FACILITIES



- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Power switch (POWER)</li> <li>2. Servo operation indicator (SERVO OPERATION)</li> <li>5. Muting switch (MUTING)</li> <li>6. Volume control (VOLUME)</li> <li>8. Input selector switches and indicator (INPUT SELECTOR)<br/>CD DIRECT, CD, PHONO, TUNER, TAPE-1/DAT, TAPE-2, VDP, VCR</li> <li>9. Speaker selector (SPEAKERS)<br/>OFF, A, B, A+B</li> <li>10. Headphone jack (PHONES)</li> <li>11. Contra bass (CONTRA BASS)</li> <li>12. Bass control (BASS)</li> <li>13. Treble control (TREBLE)</li> </ol> | <ol style="list-style-type: none"> <li>14. Balance control (BALANCE)</li> <li>15. Mode selector (MODE)<br/>STEREO, MONO</li> <li>16. Cartridge selector (CARTRIDGE)<br/>MC, MM</li> <li>17. Video mode switch (VIDEO MODE)<br/>SOUND, OFF, VDP-VCR, VDP</li> <li>18. Recording source selectors (TAPE-1 REC, TAPE-2 REC)<br/>TAPE-1 DVB 2 ▶ 1, <input type="checkbox"/>,<br/>TUNER, OFF, PHONO, CD<br/>TAPE-2 DVB 1 ▶ 2, <input type="checkbox"/>,<br/>TUNER, OFF, PHONO, CD</li> </ol> |
|--|---|

# SYSTEM CONNECTIONS



# PRINTED CIRCUIT BOARD PARTS LIST

## REC.SELECTOR AND POWER AMPLIFIER CIRCUIT PC BOARD (NAAF-2983-1)-PART LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>ICs</b>	
Q519, Q520	222942	NJM4558SE
Q701	222584	TA7317P
	<b>Transistors</b>	
Q501, Q502	2212805 or 2212806 or 2212807	2SK389 GR or 2SK389 BL or 2SK389 V
Q503~Q506, Q615 Q616	2211733 or 2211732	2SC1845 E or 2SC1845 F
Q507, Q508	2211515 or 2211516	2SA995 F or 2SA995 G
Q509, Q510, Q515	2211634 or 2211633	2SC2229 Y or 2SC2229 O
Q516, Q601, Q602	2211455 or 2210803	2SA1015 GR or 2SA733 P
Q511, Q512	2211354 or 2211353	2SA949 Y or 2SA949 O
Q513, Q514, Q603 Q604	2200864 or 2200863	2SC2238 Y or 2SC2238 O
Q605, Q606	2200874 or 2200873	2SA968 Y or 2SA968 O
Q607, Q608	2211793 or 2211792	2SA992 E or 2SA992 F
Q617, Q618	2201512 or 2201513	2SD1200 Q or 2SD1200 R
Q901	2201502 or 2201503	2SB889 Q or 2SB889 R
	<b>Diodes</b>	
D507~D510, D351 D513, D514, D704 D517~D520	223163	1SS133
D505, D506, D511 D512	225232	LTZ-R15, LED
D515, D516	4000068	VD1222
D701	223890	W01RL
D702	223145	1S2076TD
D703	2239493 or 2243163	RD6.2E B3 or MTZ6.2-C
D901, D902	2239754 or 2243294	RD22E-B4 or MTZ22-D
	<b>Coils</b>	
L601, L602	231134S	S-0.8E
	<b>Capacitors</b>	
C501, C502	372126804	68pF, 50V, Styrene
C505, C506	354780229	2.2μF, 50V, Elect.
C509, C510	379122235	0.022μF, 50V, Film (DEW)
C511, C512	372123304	33pF, 50V, Styrene
C513~C516	354762209	22μF, 35V, Elect.
C607, C608	379121045	0.1μF, 50V, Film (DEW)
C613~D616	379124735	0.047μF, 50V, Film (DEW)
C609, C610	354722219	220μF, 6.3V, Elect.
C701	354742209	22μF, 16V, Elect.
C703	354784799	0.47μF, 50V, Elect.
C704	354743319	330μF, 16V, Elect.
C706	354744719	470μF, 16V, Elect.
C707	379122235	0.022μF, 50V, Film (DEW)
C708, C710	354741019	100μF, 16V, Elect.
C713	354772219	220μF, 63V, Elect.
C901, C902	354764709	47μF, 35V, Elect.
C903, C904	354754719	470μF, 25V, Elect.
C905, C906	354782219	220μF, 50V, Elect.
C911, C912		

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Resistors</b>	
R507, R508	441623614NF	360Ω, 1W, Metal oxide film
R523, R524	442520684F	6.8Ω, 1/2W, Metal oxide film
R525, R526	442525614F	560Ω, 1/2W, Metal oxide film
R527, R528	442524734F	47 kΩ, 1/2W, Metal oxide film
R531, R532	5210062	N06HR4.7KBD, Semi-fixed
R533, R534	442524314F	430Ω, 1/2W, Metal oxide film
R601, R602	442522224F	2.2kΩ, 1/2W, Metal oxide film
R603, R604	442522214F	220Ω, 1/2W, Metal oxide film
R607~R610	442520224F	2.2Ω, 1/2W, Metal oxide film
R615~R618	4000080	0.47Ω, 5W, Metal plate
R619, R620	441727594NF	0.75Ω, 2W, Metal oxide film
R645~R648	441621604NF	16Ω, 1W, Metal oxide film
R713	442522294F	0.22Ω, 1/2W, Metal oxide film
R721, R722	442524704F	47Ω, 1/2W, Metal oxide film
R901, R902	441623004NF	30Ω, 1W, Metal oxide film
R903, R904	442525114F	510Ω, 1/2W, Metal oxide film
	<b>Relay</b>	
RL701	25065316	NRL-2P7A-DC1 2-43
	<b>Switches</b>	
S351, S352	25030261	NRSM-146-15SS
S353	25030259	NRSM-164-15SS
	<b>Terminals</b>	
P391, P392	25045165	NPJ-4PDBL-59
P393	25045166	NPJ-6PDBL-60
	<b>Socket</b>	
P501	2000551	NSAS-6P507
	<b>Plate</b>	
	27300877	Bus

## SPEAKER SWITCH PC BOARD (NASW-2984-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Resistors</b>	
R753, R754	441623914F	390Ω, 1W, Metal oxide film
	<b>Switch</b>	
S751	25030275	NRSM-144-15SS
	<b>Stereo jack</b>	
P751	25045164	HLJ-4317-01-3020

## SPEAKER TERMINAL PC BOARD (NAETC-2985-1) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Terminal</b>	
P751	25060110	NTM-4PDMN44

## SPEAKER TERMINAL PC BOARD (NAETC-2986-1) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Terminal</b>	
P752	25060110	NTM-4PDMN44

## POWER SUPPLY PC BOARD (NAPS-2988-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Diodes</b>	
D951~D954	22380012	HER303F
D955, D956	22380003F	1N5402F
	<b>Capacitors</b>	
C951~C953	375101045	0.01 $\mu$ F, 125V, Film (ME)
C954, C955	3504209	12000 $\mu$ F, 63V, Elect.
	<b>Resistors</b>	
R951	442525104F	51 $\Omega$ , 1/2W, Metal oxide film
R961, R962	442522294F	0.22 $\Omega$ , 1/2W, Metal oxide film
	<b>Plate</b>	
	27300732	Bus

## MUTING SWITCH PC BOARD (NASW-2989-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Diodes</b>	
D711	225137CG or 225137CY or 225137DG or 225137DY	SEL2413E CG, LED SEL2413E CY, LED SEL2413E DG, LED SEL2413E DY, LED
D713, D714	225142DX2	SEL2913K DX2, LED
	<b>Switches</b>	
S311, S312	25035563	NPS-122-L525
	<b>Socket</b>	
JL701	25050267	NSCT-3P95
	<b>Holder</b>	
	27190493-1	(LED-3)

## TONE CONTROL CIRCUIT PC BOARD (NAAF-2990-1) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Capacitors</b>	
C315, C316	379128225	8200pF, 50V, Film (DEW)
C317, C318	379125625	5600pF, 50V, Film (DEW)
C319, C320	379121025	1000pF, 50V, Film (DEW)
C321, C322	379123935	0.039 $\mu$ F, 50V, Film (DEW)
C325, C326	379128235	0.082 $\mu$ F, 50V, Film (DEW)
	<b>Resistors</b>	
R317	5148107	N16RGMC250KMN25, Variable
R321	5148108	N16RGM11C219K25, Variable
R323	5144001	N16RQM11C139K176K25, Variable
R337	5148109	N16RGM11C176K25, Variable
	<b>Switches</b>	
S309, (S310)	25035539	NPS-142-122-L501
	<b>Sockets</b>	
P101, P102	2000676	NSAS-6P632

## INPUT SELECTOR SWITCH PC BOARD (NASW-2991-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Switches</b>	
S301~S308	25035538	NPS-742-162-L500
	<b>Sockets</b>	
P301	2000564	NSAS-6P520
P303	2000607	NSAS-18P563
P351, P354	25050272	NSCT-8P100
P352	25050271	NSCT-7P99
P353, P356	25050267	NSCT-3P95
P355	25050273	NSCT-9P101
JL352-1	25050267	NSCT-3P95
	<b>Plugs</b>	
P302	25055137	NPLG-7P121
P501	25055133	NPLG-3P117

## DISPLAY LED PC BOARD (NADIS-2992-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Diodes</b>	
D301	225142	SEL2913K, LED
D302~D308	225137DG or 225137DY or 225137CG or 225137CY	SEL2413E DG, LED or SEL2413E DY, LED or SEL2413E CG, LED or SEL2413E CY, LED
	<b>Plug</b>	
P303	25055190	NPLG-9P174
	<b>Holder</b>	
	27190531	(LED-8)

## POWER SWICTH PC BOARD (NASW-2993-1, NASW-2993-1A, NASW-2993-1B, NASW-2993-1C)-PARTSLIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Switch</b>	
S901	25035398	NPS-111-L362P
	<b>Capacitor</b>	
C991	3500065A	0.01 $\mu$ F, AC400V/125V, (IS)
	<b>Fuse holders</b>	
F901a	250113	S-N5051 [D][W][X]
F902a	25050065	YSH403T [G][W][X][A] [B]

**EQUALIZER CIRCUIT PC BOARD (NAAF-2994-1,  
NAAF-2994-1B)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>IC</b>	
Q105	222570	NJM4560DX
	<b>Transistors</b>	
Q101~Q104	2212185 or 2212186	2SK170 GR or 2SK170 BL
	<b>Coils</b>	
L301, L302	231069A	NCH-1119
	<b>Capacitors</b>	
C105, C106	372122714	270pF, 50V, Styrene
C107, C108	372121014	100pF, 50V, Styrene
C109, C110	379122225	2200pF, 50V, Film (DEW)
C111, C112	379122234	0.022 $\mu$ F, 50V, Film (DEW)
C113, C114	379121834	0.018 $\mu$ F, 50V, Film (DEW)
C115, C116	379124734	0.047 $\mu$ F, 50V, Film (DEW)
C117, C118	391222227	2200 $\mu$ F, 6.3V, Elect.(MUSE)
C119, C120	39280227	2.2 $\mu$ F, 50V, Elect.(MUSE)
C121, C122	379121225	1200 pF, 50V, Film (DEW)
C131, C132	354754719	470 $\mu$ F, 25V, Elect.
	<b>Terminals</b>	
P191	25045171	NPJ-4PDBL-65
P395	25045180	NPJ-2PDBL70
	<b>Plugs</b>	
P101, P102, P301	25055133	NPLG-3P117
	<b>Socket</b>	
JL104, JL360	25050267	NSCT-3P95

**VOLUME CONTROL PC BOARD (NAAF-2995-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Resistors</b>	
R361	5144004	N16RQM100KBT100KBT25, Variable
	<b>Socket</b>	
P302	2000622A	NSAS-14P578

**VIDEO TERMINAL PC BOARD (NAETC-2996-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Diodes</b>	
D801, D802	223145	1S2076TD
	<b>Relays</b>	
RL801, RL802	25065298	NRL-1P1 A-DC12-40
	<b>Socket</b>	
JL801	25050268	NSCT-4P96
	<b>Terminal</b>	
	25045207	NPJ-4PDBL87

**NOTE**

- [D]: Only 220V model
- [G]: Only 240V model
- [W]: Only 120V/220V model
- [X]: Only Military market model
- [A]: Only Australian model
- [B]: Only British model